Simple Interest

⇨ When someone lends money to someone else, the borrower usually pays a fee to the lender. This fee is called "interest.'

⇨ There are two basic types of interest, "Compound Interest" and "Simple Interest" – we will deal first with "Simple Interest."

⇨ The amount of simple interest paid each year is a fixed percentage of the amount borrowed or lent at the start.

⇨ Simple interest problems can involve lending or borrowing. In both cases the same formulas are used.

$$\boxed{\text{Interestpaid} = \text{Principal} * \text{Rate} * \text{Time}}$$

this is abbreviated as

$$\boxed{I = P * r * t}$$

Where:

I = **Interest,** the total amount of interest paid,

P = **Principal,** the amount lent or borrowed,

R = **Rate,** the percentage of the principal charged as interest each year. The rate is expressed as a decimal fraction, so percentages must be divided by 100. For example, if the rate is 15%, then use 15/100 or 0.15 in the formula.

t = **Time,** the time in years of the loan.

Whenever money is borrowed, the total amount to be paid back equals the principal borrowed plus the interest charge:

$$\text{TotalRepayments} = (\text{Principal} + \text{Interest})$$

Usually the money is paid back in regular installments, either monthly or weekly. To calculate the regular payment amount, you divide the total amount to be repaid by the number of months (or weeks) of the loan. Like this:

$$MonthlyPayment = \frac{(P + I)}{LoanPeriodInMonths}$$ *or* $$WeeklyPayment = \frac{(P + I)}{LoanPeriodInWeeks}$$

To find the loan period in months, you multiply it by 12 (since there are 12 months in a year). To find it in terms of weeks, you multiply by 52 (there are 52 weeks in a year).

Example:
A student purchases a computer costing $1,500 and the simple interest rate on the 2-year loan is 12%. The loan is to be paid back in weekly installments. Calculate:
1. The amount of interest paid over the 2 years,
2. the total amount to be paid back,
3. the weekly payment amount.

Given: **P** = $1500,   **r** = 12% (or 0.12),   **t** = 2 years

Part 1: Find the amount of **interest** paid.
I = PRT (substitute)
I = 1500 × 0.12 × 2
I = $360

Part 2: Find the Total Repayment (Principal + Interest)
= $1500 + $360   = $1860

Part 3: Calculate the weekly payment amount

$$WeeklyPayment = \frac{\$1860}{(2*52)} = \$17.88 \text{ per week}$$